

REMARKS

By this amendment, applicants have amended the specification to correct a typographical error at page 10, line 10 and to describe reference numeral 21 at page 14, line 11 of the specification. Applicants have amended the claims to more clearly define their invention, including eliminating the language in claims 1 and 2 deemed indefinite and/or improper by the Examiner. Applicants have also amended Figure 5 to be designated with the legend --PRIOR ART--, as required by the Examiner in numbered section 1 of the office action.

In view of the foregoing amendment to Figure 5, reconsideration and withdrawal of the objection to Figure 5 are requested.

In view of the foregoing amendment to page 14, line 11 of the specification, and noting the description of reference numeral 30 at page 19, line 21 of the specification, reconsideration and withdrawal of the objection to the drawings in numbered section 2 of the office action are requested.

In view of the foregoing amendments to the claims, reconsideration and withdrawal of the objection to claim 2 in numbered section 3 of the office action and the rejection of claims 1 - 7 under 35 USC 112, second paragraph, in numbered sections 4 - 6 of the office action are requested.

Claims 1 - 7 stand rejected under 35 USC 103(a) as allegedly being unpatentable over International Publication No. WO 97/00226 in view of United States Patent No. 5,389,351 to Hasebe et al. Applicants traverse this rejection and request reconsideration thereof.

The present invention relates to a device for processing gaseous effluent containing at least hydrogen sulfide and sulfur dioxide, wherein an organic solvent and at least one catalyst are used. According to the present invention, a line is

provided for extraction of a fluid F containing at least solvent, catalyst, sulfur and by-products resulting from degradation of the catalyst. A processing zone is provided for processing the fluid F and includes means for heating the fluid F to favor crystallization of the by-products and separation means for separating the by-products from the rest of the fluid F.

WO 97/00226 discloses a method and device for processing a gas containing hydrogen sulfide and sulfur dioxide, wherein the gas is contacted with an organic solvent containing a catalyst in at least one gas/liquid reactor/contacter. This document discloses that a single-phase solvent and sulfur solution is drawn off from the reactor/contacter. A portion thereof is cooled in at least one cooling area to form a suspension of sulfur crystals in the solvent. The crystallized sulfur is separated from the solvent in a separation area, and both a sulfur-depleted solvent that is at least partially recycled in the reactor/contacter and sulfur are recovered. This document is not concerned with and does not mention anything about by-products generated by the degradation of the catalyst. Clearly, there is no disclosure in this document of any heating means for heating the fluid to favor crystallization of any such by-products.

The patent to Hasebe et al discloses a method for desulfurizing a gas. The Examiner notes the disclosure at column 5, lines 18 - 48 of this patent wherein it is disclosed that portions of the absorbent solvent saturated with sulfur are taken out from the circulation through a line 30 to a heater 31 for heating absorbent solvent to a temperature above the melting point of sulfur. Following heating, the sulfur-laden absorbent solvent passes through a cooler 32 where it is cooled to a temperature below the melting point of sulfur to precipitate filterable sulfur particles. The cooled absorbent is then passed through a filter 33 for separation of the elemental sulfur

from the absorbent solvent, and the filtered absorbent solvent returned to the circulation line 24 through a solvent return line 34.

This patent discloses at column 7, lines 42 - 46, that the heater raises the temperature of the absorbent composition above 110°C to melt the colloidal sulfur contained therein. Example 2 describes heating the solvent in excess of 113°C. However, there is no disclosure that the heater heats the absorbent solvent to a temperature to favor crystallization of the by-products. In fact, in many circumstances, the temperature favoring crystallization is between 120 and 180°C. Moreover, in Hasebe et al, it is disclosed that the solvent is cooled to a temperature below the melting point of sulfur (about 30°C) to precipitate filterable sulfur particles before it is passed through the filter 33. This is quite different than the present invention since the processing zone of the present invention contains heating means and separation means to separate by-products resulting from the degradation of catalyst, not to separate sulfur from the solvent. Rather, liquid sulfur is separated from the organic solvent, according to the device of the present invention, in the decantation zone.

For the foregoing reasons, the patent to Hasebe et al does not remedy any of the deficiencies noted above with respect to International Publication No. WO 97/00226. Accordingly, the presently claimed invention is patentable over the proposed combination of references.


Applicants note the Examiner has cited a number of documents as being pertinent to applicants' disclosure. However, since these documents were not applied in rejecting claims formerly in the application, further discussion of these documents is deemed unnecessary.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 612.37761VX1), and please credit any excess fees to such deposit account.

Respectfully submitted,

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Amendments to the Drawings:

The attached sheet of drawing includes changes to Fig. 5. This sheet, which includes Figs. 3, 4 and 5, replaces the original sheet including Figs. 3, 4 and 5, to include the legend "PRIOR ART" for Fig. 5.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

